DOCUMENT RESUME

ED 252 213 IR 050 950

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TITLE A Study of Information Seeking Behavior of Ph.D. Students in Selected Disciplines. Final Report.
INSTITUTION Syracuse Univ., N.Y. School of Information Studies.
SPONS AGENCY Council on Library Resources, Inc., Washington, D.C.
PUB DATE Oct 84
CONTRACT CLR-4004
NOTE 128p.; Best copy available.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS Academic Libraries; Behavior Patterns; Doctoral Programs; Foreign Students; *Graduate Students; Higher Education; *Information Seeking; *Information Utilization; *Library Materials; *Library Services; Tables (Data); Use Studies
IDENTIFIERS *Syracuse University NY

ABSTRACT

This research project investigated the information seeking behavior of Syracuse University doctoral students in six disciplines--economics, English, geology, history, philosophy, and physics. Questionnaires distributed to 112 students elicited data from 69 respondents (61.6%) on their educational environment, search strategies, selection of information channels, and demographic information. Special attention is given to the students' use of the tools and services offered by Syracuse University Libraries. Differences in information patterns among students in the six disciplines and between international and U.S. students are described, and suggestions concerning methods of library instruction are given. Several relationships were tested by statistical methods, with emphasis on those related to the students' search strategies and the material they rely on for their study or their previous knowledge of the literature. Suggestions for future research directions in this area, a 17-item bibliography, numerous tables, and a copy of the survey instrument are included. (Author/THC)

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ED252213

A STUDY OF INFORMATION SEEKING BEHAVIOR OF PH.D. STUDENTS IN SELECTED DISCIPLINES

Final Report

October 1984

This material is based on research supported in part by the Council on Library Resources (CLR-4004). The opinions, findings and conclusions expressed in this report are those of the authors and do not necessarily reflect the views of the Council on Library Resources.

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This report was written by Mona Farid, with the assistance of Eileen F. Snyder and Ruth Palmquist.

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ABSTRACT

The research project investigates the information seeking behavior of PhD students in six disciplines at Syracuse University. Questionnaires distributed to students elicited data on their educational environment, search strategies, selection of information channels, and demographic information. Special attention is given to the students' use of the tools and services offered by Syracuse University Libraries.

Differences in information patterns among students in the six disciplines and between international and U.S. students are described. Suggestions concerning methods of library instruction are given. Several relationships were tested by statistical methods, in particular, those related to the students' search strategies and the material they rely upon for their study or their previous knowledge of the literature. Suggestions for future research directions in this area are included.

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1. Introduction

This research project is concerned with the information seeking behavior of Ph.D. students in six academic departments at Syracuse University. The American doctoral program consists, in general, of three phases. In the first phase, students complete doctoral coursework, the second phase corresponds to the preparation for and advancement to candidacy, and in the third, students write a dissertation. This project, based on Farid's dissertation (9), investigates the information patterns of Ph.D. students in the first and third phases of their studies. These students will be referred to as students in group C (coursework) and in group D (dissertation) respectively.

This research investigates library use in terms extending beyond the analysis of standard variables (circulation, reference) by incorporating into the analysis variables derived from the students' own environment, namely, the educational context.

Because of the small scale of the investigation, great caution should be exercised in generalizing its findings. This project should rather be perceived as an exploratory study in understanding the information-seeking behavior of Ph.D. students in the six disciplines. The insight gained from the results may help in designing a larger scale investigation.

2. Objectives of the Research

The main objective of the research is to describe the information-seeking pattern and library use of Ph.D. students in the coursework (group C) and dissertation (group D) phases in the six academic disciplines. More specifically, the purposes of the project are:

1. to examine the educational environment of students
2. to relate certain educational variables to their search strategies and choice of information channels
3. to investigate the factors underlying the importance of specific information channels
4. to describe students' use of Syracuse University Libraries' tools and services
5. to compare the information pattern of international (non-U.S.) with that of U.S. students
6. to examine the impact, if any, of the time spent in paid employment on search strategies and choice of information channels

The information-seeking behavior of graduate students has been the object of numerous investigations such as the ones conducted in the Center for Research on User Studies at the University of Sheffield. To discuss all the research in this area is beyond the scope of this project. Specific studies will be referred to in the text, where relevant.

3. Methodology

This research describes the information-seeking behavior of Ph.D. students in six academic disciplines: Economics, English, Geology, History, Philosophy, and Physics. The survey was conducted at Syracuse University during the academic year 1983-84. No sampling techniques were used to select either the departments or the students. Because of the small number of students enrolled in the doctoral programs (112) in these departments, self-administered questionnaires were sent to the student population. Hereafter, the word "sample" refers to the total number of respondents in the survey. The selection of departments is described in the next section.

In the initial proposal, the research suggested that a small number of students could be interviewed after the completion of the questionnaires. Because of the delays involved in obtaining departmental permission for questionnaire distribution, it was decided that no interviews would take place. Subsequently, the analysis of the data confirmed the soundness of this decision, since much effort was spent in analyzing and interpreting the data. An in-depth analysis appears to be essential for a series of interviews to yield meaningful results.

This report is primarily descriptive. Because of the small number of students included, especially when broken down into several categories, tests of statistical significance are not applicable in many cases. However, when the researcher judged

the use of statistical tests like Kendall Tau and Chi Square to be useful to the analysis of the data, a SAS package available at Syracuse University on an IBM 4341 was used. The results of these tests will be reported in the text only when they are judged useful. What follows is a description of the steps taken in carrying out the research.

3.1 Selection of the Academic Departments

The researchers did not select the six departments on a random basis, but sought the advice of an administrator of the Graduate School concerning which departments were more likely to participate in the survey. Furthermore, they wanted to be sure that a certain number of international students were enrolled in the doctoral programs of these departments.

Two departments were selected from each of the three areas: humanities, social sciences, and the natural sciences. These were: English and Philosophy, Economics and History, Geology and Physics. A letter (see appendix A) was sent in October 1983 to the chairpersons of the departments outlining the purpose of the research and requesting their permission to distribute questionnaires to their Ph.D. students.

Certain departments responded immediately; several visits to others were necessary to obtain their permission. One chairperson was not available for some length of time which delayed the distribution of the questionnaire. Lists of students obtained from the departments were not accurate in all cases. For exam-

ple, students with a changed address may not always notify the department. This made it necessary for the researchers to find the correct information. Certain departments were kind enough to mark down on their list the status (coursework or dessertation) of each student in their doctoral program. Others merely indicated the length of time students were enrolled in the programs, leaving the researchers the task of determining the educational stage of certain students in the doctoral program. In many cases, students were contacted personally, to ensure the accuracy of the information.

3.2 Questionnaire Procedures

3.2.1 Questionnaire Design

The main objective in constructing the questionnaire was to create an instrument which would collect as much information as possible on specific items while maintaining sufficient brevity so that the form could be completed in twenty minutes or less. Also a special effort was made to avoid ambiguous terms due to the high percentage of international students in the population. The rationale underlying the incorporation of specific items in the questionnaire is given in the appropriate sections of this report.

The questionnaire is arranged in several sections. The first section is concerned with students' doctoral studies and the last with their demographic characteristics. It was hoped that this arrangement would interest students in completing the questionnaire.

The questionnaires sent to both groups of students were almost identical except for the sections on their educational characteristics and search strategies (see appendices B, C). Students' names did not appear on the questionnaires. Each name had been coded with a unique identifier, known only to the researcher, for data analysis.

3.2.2 Pre-test of Questionnaire

The questionnaire was pre-tested on doctoral students in the School of Information Studies. Valuable advice on the construction of the questionnaire was obtained from a social scientist and an administrator, both familiar with questionnaire design.

As a result of the pre-test, definition of certain words were added for clarification, and some items were deleted or added from multiple choice questions.

3.2.3 Distribution of Questionnaires and Follow-Up

The questionnaires, enclosed in separate campus mail envelopes carrying the return address for the School of Information Studies, were hand-carried to the respective departments and placed in the students' mailboxes in January 1984. Instructions requesting their help and explaining the method for returning the questionnaire were also placed in the envelope (Appendix D). Students were encouraged to call the researchers if they had any question about their participation.

A follow-up letter was sent to students who failed to respond within a three week period. This procedure brought several more responses. Those who still failed to return the questionnaire were given a phone call at home to encourage them to complete the questionnaire and return it. Most of those called indicated a willingness to comply, but had not remembered to do so. Occasionally, it was discovered that the subject had not been in to his/her department and had not found the questionnaire. In these cases, questionnaires were mailed to them at their home address.

Near the end of the semester an additional copy of the questionnaire was mailed, through campus mail, to those students who still had not responded. One student in group C received the questionnaire for group D. His department had listed him on both coursework and dissertation lists and he could not be reached to determine which was appropriate. However, this student's reponse was included in the results because, as mentioned previously, both questionnaires had identical sections, and the student's reponses were relevant nonetheless.

The overall response rate was 61.6%. Details on response rates for U.S. and international students across the six departments are given the next section.

4. Response rates

As mentioned previously, the overall response rate was 61.6% . Response rates varied across the disciplines, with Physics, Economics, and History (group D) having the lowest rates of response. The percentage of international students was 39.1% in the sample, versus 41.4% in the population (Table 1).

A breakdown of the distribution of students in the population and the sample by sex and citizenship is shown in Table 2. The number of U.S. male students was approximately twice that of U.S. female students in the population, and one and a half times that in the sample. The number of international male students was approximately three times that of international female students in the population, and six times that in the sample. Therefore, female international students appear to be underrepresented in the sample; none of the five female international students in group D returned their questionnaires. In contrast, U.S. female students seemed more willing to participate in the survey, and their number may be overrepresented.

International students represented thirteen countries, the majority came from India. The latter constituted 29.6% and 37% of the international students in the sample and population, respectively.

5. Demographic data

The mean and median ages of the students across the different disciplines in the sample were quite representative of those in the population (Table 3). In both groups, C and D, higher percentages of male students than female were in the 21-25 and 26-30 age categories; there were no females in group D in the first age category. In contrast, higher percentages of female than male students were in the remaining age categories, 31 years of age and above (Table 3).

A high concentration of female students was found in the English department (8 students out of 11 in the department, and out of 21 in the sample). The ages of 6 out of 8 of these students ranged from 30 to 40 years old. Two thirds of the students in History were males whose ages varied considerably, ranging from 30 to 60 years old. However, their small number did not affect the percentages for the total male population in the various age categories for goups C and D.

The age differences between male and female students conform to the general observation that female students pursue doctoral studies at a later age, most likely because of family responsibilities.

6. Funding of Doctoral Study

Students were asked to select from a list the sources of funding for their doctoral study. Over 40% of the students in History (in both groups C and D) and in English (group D) reported family income/savings to be a source of funding for their doctoral study. Loans did not appear to be significant as a source of funding.

Students in the humanities and social sciences were more likely to receive fellowships as compared to students in the sciences, whose studies, particularly at the dissertation level, were mainly funded by research grants. Eight out of 16 students in Physics, (33.3% for group C; 71.4% for group D) and five out of six in Geology (68% for group C; 100% for group D) were working on research grants compared to three students in Economics, only one student in English, and no students in History and Philosophy. One international student mentioned that funding of his doctorate was underwritten by the government of his country, and one U.S. student said that funding came from his religious order.

The major source of funding for all doctoral study was employment income. However, in responding to this question, several students did not consider University-related jobs as sources of employment income, one of the items listed as a possible response. This category, employment income, was rather understood to mean income from work in the market place. Several stu-

dents reported their teaching assistant or research associate jobs in the "other" category. Some did not respond at all despite the fact that they checked, for example, the teaching assistant category in a later question. This misinterpretation helps to explain why Table 5 indicates 65.6% for group C, 48.6% for group D, or 38 students, as receiving employment income, whereas Table 7 shows 55 students working inside or outside the University.

Although the percentages for the "employment income" category are underestimated, the data strongly suggest that this is the major source of funding for doctoral students. Results for the other sources are still valid because we have treated each item on a multiple choice list as a question on its own. In future research, special attention should be given to the "employment income" category when formulating the questionnaire. Examples may clarify the meaning of this item.

7. Nature of Students' Employment

Six students out of the 68[1] respondents were working outside the University; forty-nine were employed by the University; thirteen (9 U.S. and 4 international) were not working, but were mainly supported by fellowships (Table 7). It is interesting to note that a higher number (29 out of 32, or 90.6%) of students doing coursework held jobs than of students (27 out of 37, or 72.9%) writing their dissertations. More fellowships were provided to students in the latter category.

Over 85% of those students holding University-related jobs worked 20 hours per week, the maximum number of hours allowed by the University. As shown in Table 6, half of the total number of students in group C worked as teaching assistants or associates. This percentage is particularly high for students in English (83.3%). Slightly less than three-quarters of the Physics students writing their dissertations were research assistants or associates.[2] Three Philosophy students in group D were part-time instructors, and another in History was an associate professor.

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[1] One student did not respond to this question.

[2] In his study of 1969-1970 of PhD recipients, Rossini (15) observed that research assistantships provided the primary means of financial support for physicists.

8. Educational Characteristics and Search Strategies

8.1 Educational Characteristics of Doctoral Students Doing Coursework (group C)

The following is a summary of the overall educational characteristics of students doing coursework.

1. Twenty-nine out of 32 students had taken 9 credit hours per semester which is the minimum number for graduate students to be considered full time and to receive remitted tuition if working in the University.
2. Fifty percent of the students in the sample had no dissertation topic in mind (Table 8).
3. Writing research or seminar papers was done frequently by 46.9% of the students in the sample; occasionally, by 28.1 percent; rarely, by 18.8 percent (Table 9).
4. As was expected, over 75% of the students reported that they relied on textbooks and journal articles for their coursework (Table 10).
5. Slightly over 78% of the students had not undertaken any joint research with their advisor or with any faculty member on their committee (Table 11).

The following is a description of the educational characteristics of students in the six disciplines.

All students in Geology and English had master's degrees (a requirement by these particular departments) and all reported having a dissertation topic in mind. In contrast only one stu-

dent in Philosophy had a master's degree and none had a topic at the time of the survey. Half of the students in Physics, History and Economics had received master's degrees; fifty percent of the students in Physics and History and 75% of those in Economics did not have a dissertation topic in mind (Table 8). It is interesting to note the manner in which students reported their major and minor fields for the doctoral program. Students in English and Geology described their fields in very specific terms, those in Philosophy, in very broad terms (no minor) and History, Physics and Economics students delineated specific areas of research for their major and minor (if given) fields.

The idea for a dissertation topic came for most students from their previous courses, own readings and interests, seminar work, independent study or while doing their master's work.

All three students in Geology mentioned that the idea for their dissertation was suggested primarily by their advisors. One student in Economics stated that the search for related problems in physics and biology led him to the idea for a dissertation topic; another reported that his topic was along the same lines as his joint research with his advisor.

All the students in History, Geology, Philosophy and 83.3% in English wrote research or seminar papers frequently during the semester. Economics and Physics students wrote papers occasionally. Over 50% of the Physics students wrote research papers rarely or not at all for their courses. This may be because most of their research is mathematically or laboratory oriented (Table 9).

Textbooks and journal articles were most frequently cited by students as the materials they relied upon for their coursework. Over 80% of the English respondents, 100% of History, 50% of Philosophy, and 44% of Physics relied on material referred to by their instructors (Table 10).

Only seven (21.9%) students had undertaken joint research with their advisors: three in Economics, two in Geology, one each in Physics and Philosophy (Table 11). The joint research of two Geology students and one Economics student was in the same area as that of their dissertation. One international student in Physics had written three research papers with his advisor, but he still reported having no dissertation topic.

8.2 Educational Characteristics of Doctoral Students Writing the Dissertation (group D)

A summary of the overall educational characteristics is given below.

1. Over 60% (67.6%) of the students reported that the research interest of their advisor or any faculty member on their committee was in the same area as their dissertation research (Table 13). But 56.8% reported that their dissertation topic had not been suggested by faculty (Table 12).
2. Over half (59.5%) of the students had not undertake any joint research with their advisor (Table 14).
3. Slightly less than two thirds (62.2%) of the dissertation research was not part of a research grant (Table 15).

4. Less than half (43.2%) of the students were somewhat knowledgeable of the literature on the topic of their dissertation when they started their dissertation; students who were quite knowledgeable comprised 24.3%; students who had little knowledge comprised 18.9%; and those who had no previous knowledge comprised 8.1% (Table 16).

The following is a description of the educational characteristic of students in the six disciplines.

The majority of the students in Physics and Geology were working on joint research projects or writing papers with their advisors or faculty members on their committee. The dissertation research in these disciplines was usually part of a research grant and the topic was suggested by the advisor.[3]

Students in Economics (42.5%) and History (57.1%) reported that the research interest of their advisor was not in the same area as their dissertation research (Table 13). Three international students in Economics were investigating economic problems related to their home country. The research of one student in History dealt with cemetery landscaping, and that of another with religion.

The majority of students, except those in Physics, were somewhat knowledgeable about the literature in their research area before starting their research. Over 40% of the students in English and History were quite knowledgeable; 25% in Philosophy

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[3] Rossi (15) indicated in his study that faculty preference plays a very large role in the selection of dissertation topic.

and 28.6% in Economics had little knowledge of the literature. Over 70% of the students in Physics had little or no previous knowledge of the literature (Table 16). Students reported that their research papers, master's theses, fieldwork (Geology) presentations and archival (History) work were the sources of their previous knowledge of the literature of their research area.

8.3 Search Strategies

Students were asked to select from a list the search strategy they used to discover references needed for their research papers (Group C) or dissertation research (Group D). The list included four search strategies: the optimum, the bounded, the satisficing, and no search required. The optimum search is conducted to discover the maximum amount of relevant references, the bounded to look for a representative set of references on the research topic, and the satisficing to discover a few relevant references for a background overview (Farid, 9).

The researchers expected that students in the coursework phase to conduct the bounded search because of the time restriction imposed on their study by the semester. Students writing their dissertation were expected to conduct either the optimum or bounded search strategy depending on the educational characteristics discussed in the previous two sections.

As indicated in Table 17, the search strategies of students in Economics, History and Physics seem to conform with this anticipated search pattern. Students in History writing their disser-

tation overwhelmingly (85.7%) conducted the optimum search. As many students in Physics (9) used the optimum as used the bounded search. A high percentage of Philosophy students in both groups used the bounded search strategy, while two-thirds of the Geology students in both groups used the optimum search. Students in English in both groups were evenly divided between the optimum and the bounded search. These results seem to conform with what we had expected. However, we would have expected that students in English writing their dissertation would have conducted an optimum search. The dissertation topics given by Philosophy students (determinism, event theory, etc.) do not appear to require that they conduct an optimum search.

Six students used the satisficing search, three (in group C) reported on a previous item in the questionnaire that they relied for their coursework on material referred by instructors. The three other students (in group D) doing a satisficing search reported that they were somewhat or quite knowledgeable about the literature in their research area. The ordering of textbooks through bookstores and the availability of material needed for their research in the reserve collection were two main reasons stated by three students who had not conducted any search.

In the coursework phase, thirteen students out of 24 (41.4%) who relied on textbooks conducted the bounded search, seven (29.1%) the optimum search, and three (12.5%) conducted no search. Ten out of fifteen (66.6%) of those, who relied on material referred by instructors, conducted the bounded search,

two (13.3%) the optimum search, and three (20%) the satisficing search. Fifteen out of 24 (62.5%) of those who relied on journal articles conducted the bounded search, seven (29.1%) the optimum search, and one (4.1%) the satisficing search. It is important to note that regardless of what type of material students relied upon, textbooks, journal articles, or material referred by instructor--they most often chose to do a bounded search.

The data seem to indicate significant differences[4] between the search strategies of students (in group C) having a dissertation topic in mind and those who had none. Six out of 16 of those with a topic in mind (37.5%) conducted the optimum search; 8 students or 50% did a bounded search; one student or 6.25% conducted the satisficing search. For those with no dissertation topic in mind, two out of 16 (12.5%) conducted the optimum search; nine students or 56.25% did a bounded search; two students or 12.5% conducted a satisficing search. Three students (18.75%) had not conducted any search.

In the dissertation phase, four students out of 18 (22.2%) who conducted the optimum search were quite knowledgeable about the literature in their research area; nine (50%) reported that they were somewhat knowledgeable; four (22.2%) said they had little knowledge; one (5.5%) had no previous knowledge. Three out of 14 (21.4%) who conducted the bounded search were quite knowledgeable about the literature in their research area; six (42.8%) reported they were somewhat knowledgeable; three (21.4%) had little knowledge; one (7.1%) had no previous knowledge. Of the three stu-

[4] Chi square=16.68 with p=0.0411

dents who conducted a satisficing search, one was quite knowledgeable and two were somewhat knowledgeable about the pertinent literature.

The aforementioned examination of variables which might influence the type of search done, that is, the materials from which students have drawn their course preparation and the prior degree of knowledge students had about the literature, seem to imply that those students (in group C) who conducted the bounded search relied on a variety of materials for their course preparation, in particular, material referred to by instructor. When examining the prior knowledge of the literature influence, it seemed that the largest percentage of the those doing the bounded search were only somewhat knowledgeable about the literature in their research area before starting the dissertation.

Students (in group C) who conducted the optimum search relied to a lesser degree on textbooks and journal articles; fifty percent (in group D) who conducted the optimum search reported they were somewhat knowledgeable of the literature. Students in group C who used the satisficing search relied on material referred by instructors; those in group D were somewhat knowledgeable of the literature in their research area. Students in group C who had a dissertation topic in mind were more likely to conduct the optimum search and less likely to use the satisficing one than those who had no topic in mind. However, the latter relied more on the bounded search. More research is needed to understand these relationships.

9. Information Channels

Five information channels were considered in this study:

1. the students' own library--Syracuse University Libraries,
2. other libraries in the area--non-Syracuse University Libraries,
3. departmental special collections,
4. bookstores, and
5. personal channels.

Students at Syracuse University have access to several outstanding libraries in the area such as Onondaga County Public Library, Cornell University Libraries, the University of Rochester Libraries, and the State Library in Albany, etc. Also certain departments maintain special collections pertinent to the research needs of their students and faculty. Private purchasing (bookstores) may be preferred by students interested in eliminating time spent locating material or interested in owning their own copies. Lastly, personal channels are the ideal channels for providing the student with evaluated information concerning sources relevant to their research needs.

9.1 Syracuse University Libraries

Over 90% of all Ph.D. students rated Syracuse University Libraries as very important or fairly important in both searching for and locating information. As shown in Tables 18 and 19, over 80% of the students responding in English, Geology, and Physics rated these libraries as very important. A smaller percentage

(50%-60%) of the students in Economics, History and Philosophy rated Syracuse University libraries as very important. The strength of the collections (see Table 20) was the chief reason given for this rating.

In the dissertation phase, specialized reference tools appear to be important to all students, in particular, to those in Economics and Philosophy; subject specialists appeared to be important to students in History (70%) and study carrels to students in Economics (50%).

Four students stated in the "other" category that the geographical location of Syracuse University Libraries was very important even though their collections were neither stronger nor consistent with the students' area of research.[5] One student commented that travelling to other libraries, which may have better collections, was costly and time-consuming. The on-line catalog, SULIRS, which is discussed more fully in a later section, was cited as very important by one student.

9.2 Non-Syracuse University Libraries

History (over 70%), English (over 80%) and Economics (56%) students writing their dissertations rated non-Syracuse University Libraries as fairly important in searching for and locating material (see Table 21). This importance was mainly attributed to the quality of these libraries' collections (see Table 22). This is demonstrated in students' written comments

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[5] Dougherty (3) noted that users would prefer to use nearby libraries containing less relevant material than libraries further away.

stressing the completeness, currency, and consistency of the collections.

The geographical location of these non-Syracuse University libraries was another factor mentioned by English and History students. It appears that this information channel is considered important by those Ph.D. students who did not benefit from the availability of departmental special collections and/or who did not use the interlibrary loan service to borrow material not available at Syracuse University Libraries (see section 10.2.1). Corkill and Mann noted in their study of PhDs in the humanities that students in history appear to use "a whole range of libraries and other institutions." (6, p.55)

9.3 Departmental Special Collections

Over 70% of Physics students in both groups and 50% of Economics students in group C rated their departmental special collections as very or fairly important in searching for and locating material (see Table 23). They attributed the importance of these collections primarily to their holdings of pre-publications (see Table 24). The Physics department, for example, maintains a pre-publications collection[6] in high energy physics. Notifications of recent acquisitions are sent weekly to faculty and graduate students.

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[6] Pre-publications or pre-prints are research papers that have been submitted for publication and will eventually be accepted. Copies of these papers are distributed to research groups or laboratories all over the world to ensure the rapid dissemination of their findings. Thus physicists are made aware of the latest development in the field several months before their publication.

Half of the Philosophy students in both groups rated their departmental special collection as fairly important because of its proximity.

The students in the above three disciplines agreed that the departmental special collections were more geared to their research needs.

9.4 Bookstores

Very few students considered bookstores to be very important in searching for and locating information (Table 25). Only students in English and Philosophy in both groups C and D regarded them as fairly important, because they were able to order material they needed or to purchase their own copies (Table 26).

9.5 Personal Channels

Over 70% of all Ph.D. students rated personal channels to be important or fairly important in searching for and locating material (Tables 27, 28). This percentage was slightly lower for Economics students. The importance of these channels were attributed mainly to the evaluation of the material borrowed or reference recommended and to the opportunity to discuss the contents of the material with the advisor. In addition to these two factors, elimination of search time appears to be an important factor for doctoral students writing their dissertations, primarily notable in Physics, Economics and Philosophy. Borrowing material that can be kept as long as it is needed is another factor reported by students doing coursework in English and Economics.

Both the personal channels and departmental special collections cater to the needs of students by providing them with items of information relevant to their research interest. This may explain the correlation[7] which exists between both of these information channels.

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[7] Kendall Tau r=0.41 with p=0.028

10. Syracuse University Libraries

10.1. Utilization of the available tools

10.1.1 The Card Catalog and SULIRS

SULIRS (Syracuse University Libraries Information Retrieval System) is the public online catalog. Records of material acquired since 1971 are included in the SULIRS data base. At present, this system is the only public source for current library acquisition. Pre-1971 material is accessible only through the card catalog, except for those items heavily in demand. Records of these items have also been added to the SULIRS data base.

As suggested by students' responses, the card catalog and SULIRS appear to be the most frequently utilized tools in the libraries (see Table 30).* Over 70% of all students in groups C and D used these tools frequently or occasionally. This is particularly true for students in English, History and Geology. Students in Economics used the card catalog occasionally (particularly group D) and SULIRS frequently. In the dissertation phase, 50% of Philosophy students used both tools frequently, whereas 85.7% of Physics students used them occasionally.

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* A Kendall Tau test shows the existence of a correlation between the use of the card catalog and SULIRS with a correlation coefficient of r=0.375 and p=0.06.

10.1.2 Indexes and Abstracts

Over 50% of students in the coursework phase used indexes and abstracts frequently, over 40% of those writing their dissertation used them occasionally. Students in the first phase of their doctoral studies are more likely to search for material related to their research or seminar papers. It was shown in section 8.2 that students had some previous knowledge of the literature on their dissertation topic before they started their research. Therefore, students in the dissertation phase would not need to use indexes and abstracts as frequently.

10.1.3 Reference Bibliographies

Over 50% of students, except in Philosophy, used reference bibliographies frequently or occasionally (Table 30). Over 10% of students in group C and 20% of those in group D did not use them at all. Again, 21.9% of the students in group C and 16.2% of those in group D were not aware of these tools or did not respond to the question.

10.1.4 Directories

Fifty percent of the students in group C and 36% in group D did not use directories at all. These tools were utilized occasionally by History students (71.4%) writing their dissertations.

10.1.5 Consultation with Subject Specialists

Although subject specialists are available in almost every department in Syracuse University Libraries, 46.9% of students in group C and 32.4% in group D did not consult with them.[9] Only a small percentage of students (mostly in English) used their services (Table 30).

This result is not surprising in that students may be searching for specific information that only they may judge to be relevant to their research. Consultations with subject specialists may be regarded as more appropriate when searching for subject-related references. In certain instances, personal channels may be a substitute for subject specialists, possibly because of the recommendation and evaluation of information that students receive from this channel (see section 9.5). More troublesome to the researchers is the approximately 25% of all students in groups C and D who were not aware of the possibility of consulting with subject specialists or who did not respond to the question.

10.2 Syracuse University Library Services

Use of five services (interlibrary loan, reference, online database searching, reserve and government publications) is shown in Table 31. Because of the low demand on the remaining five services we have considered, their use is not indicated in the table, but we will comment on their usage later in the text.

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[9] Several studies have pointed out the fact that students do not seek the help of the staff in their own university library. See Corkill and Mann (6).

10.2.1 Interlibrary Loan (ILL)

Half of the students in the coursework phase did not use ILL services and half of those in the dissertation phase used them occasionally. Students in Economics and History (group D), and Geology and English (both groups), were more likely to use this service occasionally. Over 70% of the students in Economics and Philosophy in the coursework phase did not use this service at all.

The low demand on ILL services may be related to the use of non-Syracuse University libraries. It was shown in section 9.2 that students in English, History and Economics used non-Syracuse University libraries for their better collections. The data seem to indicate that there is a correlation between ILL and the use of non-Syracuse University libraries.[10]

Private borrowing (section 9.5) or the availability of strong departmental collections (section 9.3) may also explain the low demand on ILL services.

One quarter of the Physics students in both groups were not aware of ILL. Because of the correlation[11] that exists between ILL and citizenship, this lack of awareness may be attributed to the high percentage (over 70%) of international students in Physics.

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[10] Kendall Tau r=0.47 with p=0.013.

[11] Kendall Tau r=0.411 with p=0.048.

10.2.2 Reference Services

Reference services were used occasionally by students in groups C and D (37.5% and 43.2% respectively). Fifty percent of students in Economics, Philosophy and Physics writing their dissertation used them occasionally. Only students in English (both groups) and in History (group D) utilized reference services frequently.

10.2.3 Online Database Searching

Over 60% of all students in both groups surveyed did not use online searching at all, or were not aware of this service, or failed to respond to the question. This service is not offered free of charge. The library charges a fee for printing costs and royalties. Depending on the database searched and the number of citations printed, charges may range from five to twenty-five dollars per search. The economic factor may be one of the reasons why students do not make use of online services. Also, since the county public library offers limited online searching at no charge, some students may utilize this service even though it is off campus. In certain disciplines, Physics or Geology in our study for example, manual searches may be preferable to searches online, in particular when only one major index or abstracting service is the primary tool. The maintenance of a pre-print library in Physics (see section 9.3) indicates the importance of keeping abreast of papers just submitted for publication, but not yet in print. This need may not be met with online searching.

Again, the researcher cannot explain the lack of awareness of online database searching by over 25% of Economics students (group C) and Philosophy and Physics students (group D). An outline of this service is given in the Guide to Syracuse University Libraries and a detailed description is to be found in the S.U. Libraries Information Bulletin, Number 7, "Computer Search Service." These publications are available to all students.

10.2.4 Reserve Collections

As expected, reserve collections were mainly used by Ph.D. students doing coursework; 78.1% of these students compared to 59.4% of those writing their dissertations made use of this service frequently or occasionally. Besides the items reserved for courses, a core collection of the most important material is placed permanently on reserve. This explains the use of the reserve service by students in the dissertation phase. The reserve collection was used frequently by students in English and occasionally by students in Physics.

10.2.5 Government Publications

Students in Economics, Geology, and History were more likely to make use of government documents for their research. The Federal Register, Congressional reports, census data, U.S. Geological Survey publications, and state governmental publications are just a few examples of government publications needed by these students.

10.2.6 Other Syracuse University Library Services

Newspapers were read mostly by students in Economics and Physics. For the former, newspapers may constitute a source of information for their research (in particular the ones concerned with developing countries). Also both the Economics and Physics departments have a large percentage of international students who may be interested in keeping abreast of the latest development in their countries.

A copy of every dissertation and thesis produced at Syracuse University is kept in the Archives, which explains their importance for students in History and Philosophy.

Microforms were used most heavily by students in English, Geology, Physics, and History. Throughout the campus libraries, there is significant material available only in microform such as major reference material (world telephone books, for example) and collections such as Landmarks in Science.

All students writing their dissertations, with the exception of those in Physics, made use of audiovisual materials. This usage may be related to teaching assignments.

11. Library Orientation

At the time this research project was undertaken, Syracuse University Libraries did not offer any formal course in library instruction. Students could tour the main library (Bird) on their own listening to a cassette prepared by the staff. However, at the beginning of each semester, guided tours conducted by librarians are now available to new students. Faculty can also request librarians to give presentations to classes as an orientation to the Libraries' collections in specific disciplines. In addition, each librarian is required to instruct students on the use of SULIRS several hours per week.

Table 32 indicates that only 10 (31.3%) of the students in group C and 16 (43.2%) in group D had taken some form of library instruction as undergraduates or graduates. Over 70% of students in Physics (both groups), in History (group D) and Economics (group C) did not have such previous instruction. The high percentages in Physics and Economics were due to their large enrollment of international students who did not have library instruction in their own country (see Section 13).

The researchers were interested in identifying the forms of instruction which students find most helpful in reducing the amount of time spent in locating material. The choices of students doing coursework are presented here in decreasing order of choice: 1) orientation tours (six students out of ten selected this form); 2) guidebooks and handouts (four students); 3) assignments as part of a course (three students); 4) presentation

by a librarian and one-to-one tutoring (two students each). One student chose the non-credit course, and one selected the formal credit course.

The choices of students writing their dissertation were slightly different. In decreasing order, they were: 1) guidebooks and handouts (seven students out of 16); 2) assignments as part of a course (six students); 3) orientation tour (five students); 4) formal credit course and presentation by a librarian (three students each). One checked the one-to-one tutoring with subject specialists, and none indicated the non-credit course.

Because of the small number of respondents, it is difficult to explain the above figures. However, it seems that students prefer a more pragmatic and individualistic method of library instruction. By the same token, students may regard assignments as part of a course as a rapid way of guiding them to material relevant to a specific topic.

Presentation by librarians and formal credit or non-credit courses in library instruction may be perceived by students as being too general, theoretical or academically oriented rather than being tailored to their immediate and specific information needs. One would have suspected that one-to-one tutoring with subject specialists would rank much higher in students' preference, but as mentioned in section 10.1.5, students may not be aware of this option, or may prefer to use personal channels, or may even think that their state of knowledge is more advanced than that of subject specialists, and therefore do not seek their help.

12. Expenditures, Purchases of Available Material, and Memberships in Professional Associations

Students were asked for their last year's expenditures on material. They were also asked about their preference to purchase material already available in a library or personal collection, and whether or not they belonged to professional associations which provide journals as a part of the membership. The results obtained seem to indicate that students writing their dissertation spent less[12] on books and journals than did students doing coursework (see Table 35). Moreover, they were less likely to purchase available material and were more likely to join professional associations (Tables 33 and 34).

Students in English were the most likely to purchase their own materials even if available in a library, perhaps because they were able to buy inexpensive paperback editions. These students may prefer to possess their own copies to mark or to avoid the trouble of numerous renewals from the library. Since physics books are quite expensive, it is not surprising to find that Physics students[13] spent the least on material. Also, the physics and geology libraries are branches situated in the physics and geology buildings, respectively. This may explain why students of these two departments were less likely to purchase available material so close at hand.

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[12] The levels of expenditure between groups C and D were tested and the results were significant with Chi square=10.26 and p=0.036.

[13] These students occasionally inquired about the prices of books they used frequently.

Students were also asked whether they had ever requested that Syracuse University Libraries purchase material needed for their research and, if so, whether their requests had been fulfilled. Only a small number (13) of students had made such requests. Of these, 80% answered that their request had been met. It is probable that the large number of non-respondents were not aware of this possibility.

Memberships in professional associations may be regarded by students in the dissertation phase as a means of keeping up to date with research in the field, of meeting scholars in their research areas, of presenting and discussing their own research, of seeking employment opportunities, and of subscribing to journals at student rates.

Geology students in both groups are encouraged by faculty very early in their program to attend conferences and, later on, to give presentations at these meetings. Faculty and students are even accustomed to attending these meetings together. Students in English (both groups) may have realized very early in their study the importance of joining associations to their professional development. In contrast, students in Economics did not seem to join professional associations. Over 50% of these students writing their dissertations were international students who, perhaps, did not find the associations relevant to their future employment needs. They may also have found the topics discussed at the conventions less applicable to their own countries where, presumably, they will return to pursue their careers.

13. Comparison of the Information Pattern of International and U.S. Students

In this section we have attempted to compare the information pattern of U.S. and international students with respect to their search strategies, their choice of information channels, their use of the tools and services offered by Syracuse University Libraries. This difference in pattern is represented by Table 36.[14] Below is a summary of the most important findings:

1. Slightly over one third (37%) of international as opposed to 23.8% of U.S. students were doing joint research with their advisor or any faculty on their committee.
2. No significant difference was found to exist between the search strategies of international and U.S. students; over 40% in both groups conducted the bounded search.
3. Over 90% of the international and U.S. students indicated that Syracuse University Libraries were important or fairly important in searching for or locating material.
4. Twice as many U.S. as international students reported that non-Syracuse University Libraries were important or fairly important.
5. Departmental collections seem to be mostly utilized by international (37%) than U.S. students (4.8%) in searching for and in locating material. This may be because two--Physics and Economics--areas which maintain good departmental collections have higher percentages of international students. This difference in pattern was statis-

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[14] Not all categories for the variable are shown in the Table.

tically significant[15]

6. A slightly higher percentage of U.S. than international students indicated that personal channels were important or fairly important in searching for or locating material.

7. The card catalog and SULIRS were utilized frequently by U.S. students and occasionally by international students.

8. A higher percentage (40.7%) of international than U.S. (28.6%) students consulted with subject specialists. However, one third of the international students were not aware of their services or did not respond to the question.

9. As mentioned in section 10.2.1, there exists a correlation between the use of ILL and "citizenship." The data in Table 36 indicates that over 60% of the U.S. compared to 29.6% of the international students used ILL frequently or occasionally.

10. Online searching was rarely utilized by approximately half of the U.S. and 29.6% of the international students, but 14.3% of the former and 22.2% of the latter were not aware of this service.

11. Only 22.2% of the international students reported having had library orientation; this percentage was 47.6% for U.S. students.[16]

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[15] Chi square =20.552 with p=0.001 for searching and Chi square =19.101 with p=0.0018 for locating.

[16] International students indicated that library tours were more beneficial than a course (Mood, 13).

12. International students (62.9%) seem to prefer to purchase, frequently or moderately, material available in bookstores. That compared with 45.2% of the U.S. students surveyed.

13. No significant difference was found between international and U.S. students who reported joining professional associations.

14. Conclusion and Findings

The major contribution of the research has been the insight gained in understanding the information gathering behavior of PhD students in the coursework and dissertation phases of the doctoral program. This research examines the educational environment of students, attempts to relate their search strategies to variables derived from this environment and studies the use of different information channels, in particular Syracuse University Libraries.

Because of the small number of students involved, the findings were not always statistically significant; nevertheless, the results obtained are quite useful. These results will help in the design of a more refined investigation. Certain variables in the questionnaire design should be examined in greater depth; others should be measured with greater precision.

This research will be useful to library administrators for developing better library instruction and orientation programs, creating more awareness for the services and tools offered by their libraries, or in understanding the information needs of doctoral students, in particular those of international students, etc. A summary of the main findings is given in the following sections.

14.1 Educational Characteristics and Search Strategies

A small number of PhD students undertook joint research with their advisors. The data seem to indicate that for those students doing coursework there is a relationship between the com-

pletion of a masters' degree and having a dissertation topic in mind. As was expected, the majority of students doing coursework relied on textbooks and journal articles for their coursework. However, a large number indicated that material referred to by instructors was important for their study.

Doctoral students writing their dissertation seem to be somewhat knowledgeable about the literature of their dissertation topic before starting their dissertation research. As anticipated, the majority of students in the coursework phase conducted the bounded search; those in the dissertation phase undertook the optimum search. The data seem to indicate that there is a relationship between search strategies and the number and kind of material needed for coursework as well as between search strategies and having a dissertation topic in mind. Those students who conducted the bounded search relied on a variety of material whereas those who conducted the optimum search relied to a lesser degree on textbooks and journal articles. Those who had a topic in mind were more likely to conduct the optimum search than those who did not have a topic in mind.

The data suggest a relationship between previous knowledge of the literature of the dissertation topic and search strategies. Those who were somewhat knowledgeable were more likely to conduct the bounded search. These relationships need to be more fully investigated in future research.

14.2 Utilization of Syracuse University Libraries' Tools and Services

Except for the online catalog (SULIRS) and the card catalog, most tools and services offered by Syracuse University Libraries were used occasionally by PhD students in the six departments. Only a small percentage of students consulted subject specialists. It is possible that the evaluations and recommendations that students receive through personal channels may have been perceived as substitutes for the services offered by subject specialists. The correlation existing between ILL services and the use of non-Syracuse University libraries may partially explain the low demand placed on ILL services. Private borrowing through personal contacts and the availability of departmental collections may have been also responsible for this low demand.

Approximately 40% of the students utilized online database searching services frequently or occasionally. The charges that students have to pay, the possibility of conducting easily a manual search, or the currency of material available in certain departmental collections may be responsible for the low demand on online searching. As was expected, reserve collections were mainly utilized by students in the coursework phase.

The most disturbing factor encountered in analyzing the results is the high percentage of students who were not aware of the services or tools offered or did not respond to the questions concerning these tools or services. Possibly, some of the students are not familiar with the terminology of these library services or tools. More research is needed in this area.

The majority of doctoral students had no previous library instruction or orientation. It is interesting to note that those who had such instruction in the past preferred a more independent and practical method of instruction. Guided tours, handouts and assignments as part of courses ranked very high in their preferences. This has implications for librarians who may be attempting to design better orientation tools (in particular for international students) and for faculty who might want to incorporate more assignments in their courses which require library research.

14.3 Importance of Information Channels

Syracuse University Libraries and personal channels were rated as the two most important information channels by nearly all the doctoral students. The strength of collections in certain subject areas and the availability of specialized reference tools were the factors underlying the importance of the former channel. The high ratings for personal channels were primarily due to the recommendations and evaluations of borrowed material students received through these channels. In addition, private borrowing eliminated the time spent by students searching for specific items in other channels.

Non-Syracuse University Libraries appeared to be fairly important to students in History, English and Economics because of the quality of their collections in their subject areas and their geographical location.

Departmental special collections were very important to Physics and Economics students and, to a lesser extent, to

Philosophy students. Pre-publications in the departmental collections of Physics and Economics constituted a major source of information for their students. Few students considered bookstores particularly important.

14.4 International Students

The data suggest that international students were more likely than U.S. students to work on joint research with faculty. However, no significant differences were observed in the search strategies of U.S. and International students.

International students appeared to utilize more frequently than U.S. students the Syracuse University Libraries, personal channels, and departmental collections. However, twice as many U.S. students as international students reported a frequent utilization of non-Syracuse University libraries.

International students utilized occasionally the card catalog and SULIRS as opposed to U.S. students who utilized them frequently. But they tended to consult more often than U.S. students the subject specialists available at Syracuse University Libraries.

The data indicate the existence of a correlation between citizenship and interlibrary loan services. Only 29.6% of the international students utilized these services frequently or occasionally. This figure was 60% for U.S. students. Slightly less than one-quarter of the international students were not aware of online searching and approximately 80% did not have any previous library instruction. This suggests the necessity to design library instruction specific to their needs.

14.5 Student Employment

The majority of students were working 20 hours per week. Therefore, the impact of worktime on search strategies could not be investigated because of the small variation observed in the value of the time variable.

Higher percentages of PhD students doing coursework were working as teaching assistants/associates in the University than students writing their dissertation. The latter were more likely to receive fellowships (in English and Philosophy) and/or used family income/saving (History) and/or had their study funded through research grants (Physics and Geology).

BIBLIOGRAPHY

1. Allen, Don Cameron. The Ph.D. in English and American Literature. New York: Holt, Rinehart and Winston, 1969.

2. Association of Research Libraries, Office of Management Studies. User Studies in ARL Libraries. Kit 101. Wasington, D. C.: Systems and Procedures Exchange Center (SPEC), February, 1984.

3. Babbie, Earl R. Survey Research Methods. Belmont, CA: Wadsworth, 1973.

4. Berdie, Douglas R. and John F. Anderson. Questionnaires: Design and Use. Metuchen, N.J.: Scarecrow, 1974.

5. Budd, J. and DeCarlo, M. "Measures of User Evaluation at Two Academic Libraries: Prolegomena," Library Research. 4:2 (Spring 1982), 71-84.

6. Corkill, Cynthia and Margaret Mann. Information Needs in the Humanities: Two Postal Surveys. CRUS Occasional Papers. Sheffield: Centre for Research on User Studies, University of Sheffield, 1978.

7. Corkill, C., Mann, M. and Stone S. Doctoral Students in Humanities: A Small-Scale Panel Study of Information Needs and Uses. 1976-1979. CRUS Occasional Papers. Sheffield: Centre for Research on User Studies, University of Sheffield, 1981.

8. Dougherty, Richard M. and Laura L. Blomquist. Improving Access to Library Resources. Metuchen, N.J.: Scarecrow, 1974.

9. Farid, Mona. Time Allocation in Students' Bibliographic Decisions. Ph.D. Dissertations, Berkeley: University of California, 1982.

10. Genaway, David C. and Edward B. Stanford. "Quasi-Departmental Libraries," College and Research Libraries, 38:3 (May 1977).

11. Mann, Peter H. Students and Books. Boston: Routledge and Kegan, 1974.

12. Michalak, Thomas J. "Library Services to the Graduate Community: The Role of the Subject Specialist Librarian," College and Research Libraries. 37, (May 1976), 257-265.

13. Mood, Terry Ann. "Foreign Students and the Academic Library," RQ, 22:2 (Winter 1982), 175-180.

14. Payne, Stanley L. The Art of Asking Questions. Princeton, N.J.: Princeton University Press, 1951.

15. Rossini, Frederick A. "Physicists and the Doctoral Dissertation," American Journal of Physics, 50:9 (September 1982), 822-828.

16. Stam, Deirdre Corcoran. The Information-Seeking Practices of Art Historians in Museums and Colleges in the United States, 1982-83. Ph.D. Dissertation, New York: Columbia University, 1984.

17. Whitlatch, Jo Bell. "Library Use Patterns among Full and Part-Time Faculty and Students," College and Research Libraries, 44, (March 1983), 141-152.

TABLE 1

RESPONSE RATES

	Economics		English		Geology		History		Philosophy		Physics		Total		Grand Total
	C	D	C	D	C	D	C	D	C	D	C	D	C	D	
Population (#)	19	13	8	6	3	3	2	14	5	9	16	14	53	59	112
Respondents (#)	8	7	6	5	3	3	2	7	4	8	9	7	32	37	69
Response rates (%)	42.1	53.8	75.0	83.3	100.0	100.0	100.0	50.0	80.0	88.9	56.3	50.0	60.4	62.7	61.6
International Students in population (%)	22.2[a]	61.5	62.5	16.7	33.3	33.3	0.0	14.3	0.0	22.2	81.3	64.3	44.2[b]	39.0	41.4[c]
International Students in population (#)	4	8	5	1	1	1	0	2	0	2	13	9	23	23	46
International Students in sample (%)	25.0	57.1	50.0	20.0	33.3	33.3	0.0	0.0	0.0	25.0	88.9	71.4	43.7	35.1	39.1
International Students in sample (#)	2	4	3	1	1	1	0	0	0	2	8	5	14	13	27

NR = 1

a: percentage based on 18 students (non-respondent not included); b: percentage based on 52 students;
c: percentage based on 111 students.

TABLE 2

SEX AND CITIZENSHIP (U.S./International) OF RESPONDENTS

	C		D		TOTAL[a]	
	M	F	M	F	M	F
Population						
U.S. (#)	17	11	24	11	41	22
Percentages	(51.5)	(61.1)	(58.5)	(68.7)	(55.4)	(64.7)
International (#)	16	7	17	5	33	12
Percentages	(48.4)	(38.9)	(41.5)	(31.3)	(44.6)	(35.3)
Total	33	18	41	16	74	34
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Sample						
U.S. (#)	10	8	15	9	25	17
Percentages	(50.0)	(66.7)	(40.5)	(100.0)	(52.1)	(80.9)
International (#)	10	4	13	0	23	4
Percentages	(50.0)	(33.3)	(35.1)	(0.0)	(47.9)	(19.1)
Total	20	12	28	9	48	21
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

a: Data on 4 students not available.

TABLE 3

AGE DISTRIBUTION FOR THE POPULATION AND SAMPLE (years)

Mean, Median, and Interquartile Range

	Economics	English	Geology	History	Philosophy	Physics
Population						
Mean	30.03	32.57	28.6	37.5	29.23	28.35
Median	29.0	32.0	28.5	34.5	27.0	27.0
Interquartile Range	9.0	7.75	2.25	11.5	5.5	5.0
Sample						
Mean	27.8	31.8	28.6	40.2	28.75	28.56
Median	25.5	32.0	28.5	35.0	26.5	27.0
Interquartile Range	10.5	5.0	2.25	11.5	4.25	5.0

TABLE 4

AGE AND SEX OF RESPONDENTS (percentages)

	C		D		TOTAL		GRAND TOTAL
AGE (years)	M	F	M	F	M	F	
21-25	36.8	25.0	7.1	0.0	19.1	14.3	17.6
26-30	42.1	41.7	46.4	22.2	44.7	33.3	41.1
31-35	15.8	25.0	32.1	44.2	25.5	33.3	27.9
36-40	5.3	0.0	3.6	22.2	4.2	9.5	5.9
41-45	0.0	8.3	3.6	0.0	4.2	4.8	2.9
over 46	0.0	0.0	7.1	11.1	4.2	4.8	4.4
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(#)	(19)	(12)	(28)	(9)	(47)	(21)	(68)

NR = 1 (Group C)

TABLE 5

FUNDING OF DOCTORAL STUDY (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Research grant	12.5	28.6	0.0	20.0	67.0	100.0	0.0	0.0	0.0	0.0	33.3	71.4	18.8	29.7
Fellowship	12.5	14.3	33.0	60.0	33.0	0.0	0.0	28.6	25.0	25.0	11.1	28.6	18.8	27.0
Family income/ savings	0.0	0.0	0.0	40.0	0.0	33.0	50.0	42.8	0.0	37.5	11.1	0.0	6.2	24.3
Loans	25.0	0.0	0.0	20.0	0.0	0.0	50.0	14.3	25.0	0.0	0.0	0.0	12.5	5.4
Employment income	62.5	57.1	50.0	20.0	33.0	67.0	50.0	71.4	100.0	75.0	66.6	0.0	65.6	48.6
Other		14.3						14.3					0.0	5.4

TABLE 6

JOBS HELD IN THE UNIVERSITY (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Research Asst./ Assoc.	37.5	42.9	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	71.4	12.5	24.3
Graduate Asst./ Assoc.	12.5	0.0	0.0	0.0	33.3	66.7	0.0	0.0	50.0	12.5	33.3	0.0	21.9	8.1
Teaching Asst./ Assoc.	37.5	28.6	83.3	20.0	33.3	0.0	50.0	28.6	50.0	25.0	44.4	0.0	50.0	18.9
Other								14.3		37.5			0.0	10.8

TABLE 7

HOURS WORKED WEEKLY (percentages in parentheses)

n=68[a]

	Inside the University n=49 (42.0)		Outside the University n=6 (8.8)	
	C n=27 (55.1)[b]	D n=22 (44.8)[b]	C n=2 (33.3)[c]	D n=4 (66.4)[c]
20 hours	24 (88.9)	19 (86.4)	2 (100.0)	1 (25.0)
30 hours	2 (7.4)	1 (4.5)	0 (0.0)	0 (0.0)
40 hours	1 (3.4)	1 (4.5)	0 (0.0)	1 (25.0)
50 hours	0 (0.0)	1 (4.5)	0 (0.0)	1 (25.0)
60 hours	0 (0.0)	0 (0.0)	0 (0.0)	1 (25.0)

NR = 1

Note:
a: Non-respondents not included.
b: percentage based on 49.
c: percentage based on 6.

TABLE 8

DISSERTATION TOPIC (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	C n=8	C n=6	C n=3	C n=2	C n=4	C n=9	C n=32
Responses							
Yes	25.0	100.0	100.0	50.0	0.0	44.4	50.0
No	75.0	0.0	0.0	50.0	100.0	55.6	50.0

TABLE 9

WRITING RESEARCH PAPER (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	C n=8	C n=6	C n=3	C n=2	C n=4	C n=9	C n=32
Responses							
Frequently	12.5	83.3	100.0	100.0	100.0	0.0	46.9
Occasionally	62.5	0.0	0.0	0.0	0.0	44.4	28.1
Rarely	12.5	16.7	0.0	0.0	0.0	44.4	18.8
Not at all	12.5	0.0	0.0	0.0	0.0	11.1	6.2

TABLE 10

MATERIAL FOR COURSEWORK (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	C n=8	C n=6	C n=3	C n=2	C n=4	C n=9	C n=32
Responses							
Textbooks	87.5	100.0	100.0	0.0	50.0	77.8	78.1
Xeroxed materials	25.0	50.0	33.3	0.0	75.0	0.0	28.1
Referred materials	25.0	83.3	33.3	100.0	50.0	44.4	50.0
Journal articles	75.0	75.0	100.0	50.0	100.0	77.8	78.1

TABLE 11

JOINT RESEARCH (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	C n=8	C n=6	C n=3	C n=2	C n=4	C n=9	C n=32
Responses							
Yes	37.5	0.0	66.7	0.0	25.0	11.1	21.9
No	62.5	100.0	33.3	100.0	75.0	88.9	78.1

TABLE 12

SUGGESTED RESEARCH TOPIC (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Totals
	D n=7	D n=5	D n=3	D n=7	D n=8	D n=7	D n=37
Responses							
Yes	28.6	20.0	100.0	14.3	12.5	71.4	35.1
No	57.1	80.0	0.0	71.4	75.0	28.6	56.8
NR	14.3			14.3	12.5		8.1

TABLE 13

SIMILAR RESEARCH AREA (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Totals
	D n=7	D n=5	D n=3	D n=7	D n=8	D n=7	D n=37
Responses							
Yes	42.9	80.0	100.0	28.6	87.5	85.7	67.6
No	28.6	20.0	0.0	57.1	0.0	14.3	21.6
NR	28.6			14.3	12.5		10.8

TABLE 14

JOINT RESEARCH (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	D n=7	D n=5	D n=3	D n=7	D n=8	D n=7	D n=37
Responses							
Yes	28.6	20.0	100.0	0.0	0.0	100.0	35.1
No	71.4	80.0	0.0	85.7	87.5	0.0	59.5
NR				14.3	12.5		5.4

TABLE 15

DISSERTATION ON RESEARCH GRANT (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	D n=7	D n=5	D n=3	D n=7	D n=8	D n=7	D n=37
Responses							
Yes	28.6	20.0	66.7	0.0	0.0	85.7	29.7
No	57.1	80.0	33.3	85.7	87.5	14.3	62.2
NR	14.3			14.3	12.5		8.1

TABLE 16

PREVIOUS KNOWLEDGE OF THE LITERATURE (percentages)

	Economics	English	Geology	History	Philosophy	Physics	Total
	D n=7	D n=5	D n=3	D n=7	D n=8	D n=7	D n=37
Responses							
No previous knowlege	14.3	0.0	0.0	0.0	0.0	28.6	8.1
Little knowlege	28.6	0.0	0.0	0.0	25.0	42.8	18.9
Somewhat knowledgeable	42.8	60.0	66.7	42.8	50.0	14.3	43.2
Quite knowledgeable	14.3	40.0	33.3	42.8	12.5	14.3	24.3
NR				14.3	12.5		5.4

TABLE 17

SEARCH STRATEGIES (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Optimum	25.0	57.1	33.3	40.0	66.7	66.7	0.0	85.7	25.0	12.5	11.1	42.9	25.0	48.6
Bounded	62.5	28.6	33.3	40.0	33.3	33.3	50.0	0.0	50.0	75.0	66.7	42.9	53.1	37.8
Satisficing	0.0	0.0	16.7	20.0	0.0	0.0	50.0	0.0	0.0	12.5	11.1	14.3	9.4	8.1
No search necessary	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	11.1	0.0	9.4	0.0
NR		14.3	16.7					14.3					3.1	5.4

TABLE 18

IMPORTANCE OF SYRACUSE UNIVERSITY LIBRARIES IN SEARCHING (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Very important	37.5	57.1	83.4	100.0	100.0	100.0	50.0	42.8	50.0	50.0	88.9	85.7	68.7	67.5
Fairly important	62.5	28.5	16.6	0.0	0.0	0.0	50.0	57.1	25.0	37.5	0.0	14.3	25.0	27.0
Fairly unimp.	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	3.1	2.7
Not important	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	3.1	0.0
Not applicable										12.5			0.0	2.7

TABLE 19

IMPORTANCE OF SYRACUSE UNIVERSITY LIBRARIES IN LOCATING (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Very important	62.5	57.1	83.4	80.0	100.0	66.6	50.0	42.8	50.0	50.0	66.6	85.7	68.7	62.1
Fairly important	37.5	28.6	16.6	0.0	0.0	0.0	0.0	57.1	25.0	37.5	22.3	14.3	21.9	27.0
Fairly unimp.	0.0	14.3	0.0	20.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	3.1	5.4
Not important	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	3.1	0.0
Not applicable						0.0				12.5			0.0	2.7
NR						33.3							3.1	2.7

TABLE 20

FACTORS AFFECTING SEARCHING/LOCATING IN SYRACUSE UNIVERSITY LIBRARIES (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=6	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=3	D n=7	C n=9	D n=7	C n=31	D n=35
Responses														
Collection strong	37.5	33.3	50.0	40.0	100.0	66.7	0.0	28.6	33.3	57.1	55.6	85.7	51.6	51.4
Specialized reference tools	50.0	83.3	50.0	60.0	100.0	66.7	50.0	42.9	66.7	85.7	44.4	57.1	54.8	65.7
Materials can be located	75.0	50.0	33.3	20.0	33.3	33.3	0.0	71.4	33.3	42.9	33.3	85.7	41.9	54.3
A study carrel	12.5	50.0	16.7	0.0	0.0	0.0	0.0	14.3	0.0	28.6	0.0	0.0	6.5	17.1
Subject specialist	0.0	16.7	0.0	20.0	0.0	0.0	0.0	71.4	0.0	0.0	11.1	0.0	3.2	20.0
Other	12.5	0.0	16.7	20.0	0.0	0.0	0.0	0.0	0.0	14.2	11.1	0.0	9.7	5.7

TABLE 21

IMPORTANCE OF DEPARTMENTAL SPECIAL COLLECTIONS (percentages)

	Searching		Locating	
	C n=32	D n=37	C n=32	D n=37
Very important	21.9	13.5	21.9	13.5
Fairly important	21.9	21.6	18.7	21.6
Fairly unimportant	3.1	16.2	3.1	24.3
Not important	18.7	21.6	21.9	13.5
Not applicable	28.1	24.3	25.0	21.6
NR	6.2	2.7	9.4	5.4

TABLE 22

FACTORS AFFECTING SEARCHING AND LOCATING IN DEPARTMENTAL COLLECTIONS (percentages)

	C n=14	D n=14
Accessible only to students	42.9	35.7
Specific to research	78.6	85.7
Collections not available elsewhere	14.3	42.9
Collections include pre-print publications	50.0	50.0
Geographical location	42.9	28.6
Environment conducive to discussion	42.9	50.0

TABLE 23

IMPORTANCE OF NON-SYRACUSE UNIVERSITY LIBRARIES (percentages)

	Searching		Locating	
	C n=32	D n=37	C n=32	D n=37
Very important	6.2	24.3	9.4	27.0
Fairly important	12.5	24.3	6.2	18.9
Fairly unimportant	21.8	16.2	34.4	18.9
Not important	31.2	27.0	21.9	16.2
Not applicable	15.6	5.4	18.7	8.1
NR	12.5	2.7	9.4	10.8

TABLE 24

FACTORS AFFECTING SEARCHING/LOCATING IN NON-SYRACUSE UNIVERSITY LIBRARIES (percentages)

	C n=8	D n=19
Geographical location	50.0	42.1
Smaller size	25.0	10.5
Easy to locate	25.0	10.5
Special collections	62.5	73.7
Library staff	50.0	10.5
Special reference tools	37.5	21.1
Other	25.0	10.5

TABLE 25

IMPORTANCE OF BOOKSTORES (percentages)

	Searching		Locating	
	C n=32	D n=37	C n=32	D n=37
Very important	3.1	2.7	9.4	8.1
Fairly important	28.1	24.3	31.2	18.9
Fairly unimportant	28.1	18.9	25.0	21.6
Not important	31.2	27.0	21.8	21.6
Not applicable	0.0	24.3	3.1	24.3
NR	9.4	2.7	9.4	5.4

TABLE 26

FACTORS AFFECTING SEARCHING/LOCATING IN BOOKSTORES (percentages)

	C n=16	D n=12
Time is not wasted	12.5	8.3
Collection up to date	31.2	16.6
Wait eliminated	31.2	50.0
Items can be ordered	56.2	58.3
Geographical location	12.5	25.0
Owning is preferable	62.5	75.0
Other	0.0	8.3

TABLE 27

IMPORTANCE OF PERSONAL CHANNELS IN SEARCHING (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Totals	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Very important	37.5	14.3	33.3	20.0	66.6	33.3	0.0	42.8	50.0	75.0	44.4	57.1	40.6	43.2
Fairly important	25.5	42.8	50.0	60.0	33.3	66.6	100.0	42.8	50.0	12.5	44.4	28.5	43.7	37.8
Fairly unimp.	37.5	28.5	0.0	20.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	9.4	10.8
Not important	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	11.1	14.3	3.1	8.1
NR			16.6										3.1	0.0

TABLE 28

IMPORTANCE OF PERSONAL CHANNELS IN LOCATING (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Totals	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=0	D n=7	C n=32	D n=37
Responses														
Very important	37.5	14.3	33.3	60.0	33.3	0.0	0.0	42.8	75.0	37.5	0.0	42.8	28.1	35.1
Fairly important	25.0	14.3	50.0	20.0	0.0	100.0	100.0	42.8	25.0	37.5	66.6	28.6	43.7	35.1
Fairly unimp.	25.0	28.6	0.0	20.0	33.3	0.0	0.0	0.0	0.0	25.0	0.0	14.3	12.5	16.2
Not important	0.0	14.3	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	22.2	0.0	6.2	5.4
Not available	0.0	14.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	2.7
NR		14.3	16.6									14.3	6.2	5.4

TABLE 29

FACTORS AFFECTING SEARCHING/LOCATING FOR PERSONAL CHANNELS (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=5	D n=4	C n=5	D n=5	C n=3	D n=3	C n=2	D n=6	C n=4	D n=7	C n=8	D n=6	C n=27	D n=31
Responses														
Material kept for as long as needed	[illegible].0	25.0	100.0	40.0	0.0	66.6	50.0	50.0	50.0	42.8	12.5	33.3	44.4	41.9
Material evaluated as to pertinence to research	80.0	50.0	80.0	100.0	66.6	66.6	50.0	50.0	100.0	100.0	75.0	66.6	77.8	74.2
Opportunity to discuss the contents	80.0	75.0	80.0	20.0	66.6	100.0	50.0	66.6	25.0	71.4	50.0	100.0	59.3	71.0
Time spent searching is eliminated	40.0	75.0	20.0	20.0	20.0	20.0	0.0	50.0	50.0	71.4	62.5	94.0	40.7	58.1
Other	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	3.7	3.2

TABLE 30

USE OF SYRACUSE UNIVERSITY LIBRARY TOOLS (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Card Catalog														
Frequently	25.0	14.3	50.0	60.0	100.0	67.0	50.0	57.1	0.0	50.0	55.6	14.3	34.4	40.5
Occasionally	37.5	57.1	50.0	20.0	0.0	33.0	0.0	28.6	100.0	25.0	44.4	85.7	43.7	43.2
Not at all	25.0	14.3	0.0	0.0	0.0	0.0	0.0	14.3	0.0	25.0	0.0	0.0	6.2	10.8
Not aware	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NR	12.5	14.3		20.0			50.0						6.2	5.4
SULIRS														
Frequently	62.5	57.1	83.3	100.0	100.0	33.3	100.0	42.9	25.0	50.0	33.3	14.3	59.4	48.6
Occasionally	37.5	14.3	16.7	0.0	0.0	33.3	0.0	28.6	50.0	37.5	44.4	85.7	31.3	35.1
Not at all	0.0	14.3	0.0	0.0	0.0	33.3	0.0	14.3	25.0	0.0	22.2	0.0	9.4	8.1
Not aware	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	2.7
NR		14.3						14.3						
Indexes and Abstracts														
Frequently	25.0	57.1	33.3	40.0	100.0	66.7	100.0	14.3	25.0	12.5	77.8	14.3	53.1	29.7
Occasionally	25.0	0.0	50.0	20.0	0.0	33.3	0.0	57.1	50.0	62.5	11.1	71.4	25.0	43.2
Not at all	25.0	28.6	0.0	20.0	0.0	0.0	0.0	14.3	0.0	25.0	11.1	14.3	9.4	18.9
Not aware	25.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	9.4	2.7
NR			16.7	20.0				14.3					3.1	5.4

(continued)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Reserve														
Frequently	25.0	0.0	50.0	40.0	33.3	33.3	0.0	14.3	0.0	37.5	22.2	28.6	25.0	24.3
Occasionally	37.5	42.9	50.0	60.0	33.3	33.3	100.0	14.3	75.0	12.5	55.6	57.1	53.1	35.1
Not at all	37.5	57.1	0.0	0.0	33.3	33.3	0.0	57.1	25.0	25.0	0.0	14.3	15.6	32.4
Not aware	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NR								14.3		25.0	22.2		6.3	8.1
Government Publications														
Frequently	37.5	42.9	0.0	0.0	0.0	33.3	0.0	28.6	0.0	12.5	0.0	0.0	9.4	18.9
Occasionally	37.5	28.6	0.0	20.0	66.7	66.7	50.0	57.1	0.0	0.0	0.0	14.3	18.7	27.1
Not at all	12.5	28.6	83.3	60.0	33.3	0.0	50.0	14.3	100.0	62.5	77.8	71.4	59.4	43.2
Not aware	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NR	12.5		16.7	20.0						25.0	22.2	14.3	12.5	10.8

TABLE 31

USE OF SYRACUSE UNIVERSITY LIBRARY SERVICES (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
ILL														
Frequently	0.0	14.3	0.0	40.0	0.0	0.0	50.0	14.3	25.0	12.5	0.0	0.0	6.2	13.5
Occasionally	12.5	57.1	66.7	60.0	66.7	66.7	0.0	85.7	0.0	25.0	11.1	28.6	25.0	51.4
Not at all	87.5	28.6	16.7	0.0	33.3	33.3	50.0	0.0	75.0	37.5	33.3	42.9	50.0	24.3
Not aware	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	28.6	9.4	5.4
NR			16.7							25.0	22.2		9.4	5.4
Reference														
Frequently	25.0	28.6	50.0	80.0	33.3	0.0	0.0	42.8	0.0	25.0	11.1	14.3	21.9	32.4
Occasionally	37.5	57.1	16.7	20.0	33.3	33.3	100.0	28.6	50.0	50.0	33.3	57.1	37.5	43.2
Not at all	25.0	14.3	16.7	0.0	33.3	66.7	0.0	28.6	25.0	12.5	33.3	28.6	25.0	21.6
Not aware	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	11.1	0.0	6.3	0.0
NR	12.5		16.7							12.5	11.1		9.4	2.7
Online Search														
Frequently	25.0	28.6	33.3	20.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0	14.3	15.6	16.2
Occasionally	0.0	0.0	16.7	20.0	33.3	33.3	0.0	0.0	0.0	12.5	44.4	28.6	18.7	13.5
Not at all	37.5	71.4	16.7	40.0	33.3	66.7	100.0	71.4	75.0	0.0	22.2	28.6	37.5	43.2
Not aware	37.5	0.0	16.7	20.0	33.3	0.0	0.0	14.3	0.0	37.5	0.0	28.6	15.6	18.9
NR			16.7					14.3		25.0	33.3		12.5	0.0

(continued)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Reference Bibliographies														
Frequently	12.5	28.6	33.3	60.0	33.3	33.3	50.0	28.6	25.0	0.0	44.5	14.3	31.3	24.3
Occasionally	37.5	42.9	50.0	20.0	66.7	33.3	50.0	57.1	25.0	25.0	11.1	42.9	34.4	37.8
Not at all	25.0	14.3	0.0	0.0	0.0	33.3	0.0	14.3	25.0	62.5	11.1	0.0	12.5	21.6
Not aware	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	28.6	6.3	5.4
NR	12.5	14.3	16.7	20.0						12.5	33.3	14.3	15.6	10.8
Directories														
Frequently	0.0	14.3	16.7	20.0	0.0	0.0	0.0	14.3	25.0	25.0	0.0	0.0	6.3	13.5
Occasionally	25.0	14.3	33.3	20.0	33.3	0.0	0.0	71.4	0.0	12.5	11.1	28.6	18.8	27.0
Not at all	50.0	57.1	16.7	0.0	66.7	100.0	100.0	14.3	50.0	37.5	66.7	28.6	53.1	35.1
Not aware	12.5	14.3	0.0	40.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	28.6	6.3	13.5
NR	12.5		33.3	20.0						25.0	22.2	14.2	15.6	10.8
Consultation with Subject Specialists														
Frequently	12.5	14.3	16.7	0.0	0.0	33.3	0.0	28.6	0.0	25.0	22.2	14.3	12.5	18.9
Occasionally	0.0	14.3	0.0	40.0	0.0	33.3	50.0	28.6	0.0	25.0	33.3	0.0	12.5	21.6
Not at all	62.5	42.9	50.0	40.0	100.0	33.3	50.0	42.9	25.0	12.5	22.2	28.6	46.9	32.4
Not aware	25.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	75.0	12.5	11.1	57.1	18.8	16.2
NR		14.3	33.3	20.0						25.0	11.1		9.3	10.8

TABLE 32

LIBRARY ORIENTATION (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Yes	12.5	42.9	50.0	60.0	66.7	100.0	100.0	28.6	0.0	37.5	22.2	28.6	31.3	43.2
No	87.5	57.1	50.0	40.0	33.3	0.0	0.0	71.4	100.0	62.5	77.8	71.4	68.7	56.8
NR														

TABLE 33

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Yes	12.5	14.3	66.7	80.0	100.0	100.0	50.0	85.7	25.0	62.5	22.2	85.7	37.5	67.6
No	87.5	85.7	33.3	20.0	0.0	0.0	50.0	14.3	75.0	37.5	66.7	14.3	59.4	32.4
NR											11.1		3.1	

TABLE 34

PREFERENCE FOR PURCHASE OF AVAILABLE MATERIAL (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
Frequently	12.5	0.0	50.0	40.0	0.0	33.3	50.0	14.3	25.0	25.0	22.2	14.3	25.0	18.9
Moderately	12.5	42.9	50.0	0.0	33.3	33.3	50.0	28.6	50.0	25.0	33.3	28.6	34.4	27.0
Rarely	75.0	0.0	0.0	60.0	66.7	33.3	0.0	57.1	0.0	37.5	44.4	57.1	37.5	40.5
Not at all	0.0	57.1	0.0	0.0	0.0	0.0	0.0	0.0	25.0	12.5	0.0	0.0	3.1	13.5
NR														

TABLE 35

MATERIAL EXPENDITURES DURING 1983 (percentages)

	Economics		English		Geology		History		Philosophy		Physics		Total	
	C n=8	D n=7	C n=6	D n=5	C n=3	D n=3	C n=2	D n=7	C n=4	D n=8	C n=9	D n=7	C n=32	D n=37
Responses														
$200 +	62.5	42.9	50.0	60.0	66.7	0.0	50.0	0.0	75.0	37.5	33.3	0.0	53.1	24.3
$150- $199	12.5	0.0	16.7	0.0	33.3	33.3	0.0	28.6	0.0	25.0	11.1	0.0	12.5	13.5
$100- $149	0.0	28.6	16.7	0.0	0.0	0.0	50.0	42.9	25.0	0.0	44.4	28.6	21.9	18.9
$50- $99	0.0	0.0	16.7	20.0	0.0	33.3	0.0	14.3	0.0	37.5	0.0	42.9	3.1	24.3
under $50	25.0	28.6	0.0	20.0	0.0	33.3	0.0	14.3	0.0	0.0	11.1	28.6	9.4	18.9
NR														

TABLE 36

INFORMATION PATTERN OF U.S. AND INTERNATIONAL STUDENTS (percentages)

	U.S. Students n=42	International Students n=27
Joint Research		
Yes	23.8	37.0
Searching		
Optimum	38.1	37.0
Bounded	42.8	48.1
Satisficing	9.5	7.1
Syracuse University Libraries		
Very important, or fairly important, in searching	95.2	92.6
Very important, or fairly important, in locating	90.5	88.9
Non-Syracuse University Libraries		
Very important, or fairly important, in searching	42.9	22.2
Very important, or fairly important, in locating	40.5	18.5

	U.S. Students n=42	International Students n=27
Departmental Collections		
Very important in searching	4.8	37.0
Fairly important in searching	23.8	18.5
Very important in locating	4.8	37.0
Fairly important in locating	21.4	18.5
Bookstores		
Very important, or fairly important, in searching	33.3	22.2
Very important, or fairly important, in locating	35.7	29.6
Personal Channels		
Very important, or fairly important, in searching	85.7	77.7
Very important, or fairly important, in locating	78.6	59.2
Card Catalogue		
Frequently	50.0	29.6
Occasionally	35.7	55.5
SULIRS		
Frequently	61.9	40.7
Occasionally	26.2	44.4
Not aware	4.7	0.0

	U.S. Students n=42	International Students n=27
Subject Specialist		
Frequently	11.9	22.2
Occasionally	16.7	18.5
Not aware	16.7	18.5
NR	7.1	14.8
ILL		
Frequently	14.3	3.7
Occasionally	47.6	25.9
Not aware	2.4	14.8
Online Searching		
Frequently	19.1	11.1
Occasionally	9.5	25.9
Rarely	47.6	29.6
Not aware	14.3	22.2
Orientation		
Yes	47.6	22.2
Preference to Purchase		
Frequently	21.4	22.2
Moderately	23.8	40.7
Spent		
Over $200	42.8	29.6
$150- $199	9.5	18.5
$100- $149	11.9	33.3
Member of Professional Organization		
Yes	61.9	59.3

APPENDIX A

Dear

We have received a research grant from the Council on Library Resources to investigate the information seeking behaviour of PhD students from selected disciplines. The grant will allow us to study the information search strategies of these students and their choice of information as they fulfill their educational requirements. The results of this research should ultimately benefit libraries in areas of collection development, reference resources, and others.

In order to carry out the research we are requesting your permission to distribute a questionnaire to PhD students in your department. The questionnaire should not take more than half an hour to complete. Some of the students will also be asked for a follow-up interview. This survey will take place towards the end of October. Since no name will appear on the questionnaire and all data will be kept locked and accessible only to the researchers, confidentiality will be assured. The interviews will be taped but the tapes will be erased upon completion of the study. These procedures were reviewed and approved by the Office of Sponsored Programs (Human Services).

If you have any questions concerning this request, please feel free to address your inquiries to:

Mona Farid
Assistant Professor
School of Information Studies
200 Huntington Hall
x-4124

or

Eileen Snyder
Librarian
Physics/Geology Libraries
x-2692/3337

APPENDIX B

QUESTIONS 1 THROUGH 10 ARE CONCERNED WITH YOUR DOCTORAL COURSEWORK:

1. In what year and discipline did you obtain your bachelor/master(s) degree?

Degree	Year	Discipline*
Bachelor		
Master(s)		

*e.g., Physics, Engineering, English, History, etc.

2. What is the major field of your doctoral program?

3. What is the minor field(s) of your doctoral program?

4. On the average, how many credit hours do you take per semester? Please circle only the one best answer.

   a. 6 credit hours

   b. 9 credit hours

   c. 12 credit hours

   d. 15 credit hours

5. How often does your coursework require that you write a research or seminar paper, laboratory research report, etc.? Please circle only the one best answer.

   a. Frequently

   b. Occasionally

   c. Rarely

   d. Not at all

6. What kind of material(s) do you mainly rely upon for your coursework? Circle more than one answer if necessary.

   a. Textbooks.

   b. Xeroxed material handed out by the instructors.

   c. Material referred to me by my instructors.

   d. Journal articles.

   e. Other, please specify.

7. Have you ever undertaken any joint research, seminar papers or laboratory research projects with a faculty member during your coursework?

   ( ) YES

   ( ) NO

8. If YES, explain the nature of the research or paper.

9. Do you have any topic in mind for your dissertation?

   ( ) YES

   ( ) NO

10. If YES, explain how the idea came to your mind.

QUESTIONS 11 THROUGH 19 ARE CONCERNED WITH SEARCH STRATEGIES AND INFORMATION CHANNELS:

11. When searching (looking for references and selecting material needed for your doctoral coursework), which of the following search strategies is most appropriate for your research papers? Please circle the one best answer.

    a. Optimum search - all material relevant to a certain topic. This material may be scattered across several disciplines and may require much effort to discover.

    b. Bounded search - a representative set of references on the topic. These references are well-known and well-defined (e.g., core journals) and were identified from previous coursework or masters thesis.

    c. Satisficing search - a few relevant references for a background overview and/or material with particular facts and data.

    d. No search is necessary.

12. If you have circled answer d just above in question 11, please state your reason(s) for choosing "no search is necessary." Circle more than one answer, if necessary.

    a. Course text books are ordered through a bookstore.

    b. Instructor provides a comprehensive bibliography or reading list.

    c. Instructor places on reserve (Bird Library or in branch libraries) material relevant to my research projects and/or coursework.

    d. During lectures/discussions, the instructor reviews the current state of the literature providing relevant citations.

    e. Other, please specify.

APPENDIX B

Please answer questions 13 and 14 using the scale below.

1	Very important
2	Fairly important
3	Fairly unimportant
4	Not important
5	Not applicable

13. What is the importance of each of the following information channels when searching (looking for references and selecting material needed for your doctoral program)? Please choose one answer for each item.

a.	Syracuse University Libraries	1	2	3	4	5
b.	Non Syracuse University Libraries (i.e. Moon, Cornell, public libraries, historical societies)	1	2	3	4	5
c.	Departmental Special Collections (i.e. pre-print collection in the Physics Department)	1	2	3	4	5
d.	Bookstores	1	2	3	4	5
e.	Personal Channels (references suggested by faculty, friends, fellow students, etc.)	1	2	3	4	5
f.	Other, please specify	1	2	3	4	5

14. What is the importance of each of the following information channels when <u>locating</u> (obtaining the material in hand from the bookshelf or from the circulation desk) material needed for your doctoral coursework?

a.	Syracuse University Libraries	1	2	3	4	5
b.	Non-Syracuse Univ. Libraries	1	2	3	4	5
c.	Departmental Special Collections	1	2	3	4	5
d.	Bookstores	1	2	3	4	5
e.	Personal Channels	1	2	3	4	5
f.	Other, please specify	1	2	3	4	5

15. If you rated Syracuse University Libraries important in searching for and/or locating materials for your course-work, what are the factors that helped you the most? Circle <u>more</u> than one answer if necessary.

a. The collection is strong in my research area.

b. Specialized reference tools (e.g. indexes, abstracts, etc.) are available.

c. Material can be located.

d. A study carrel in Bird Library is available.

e. Subject specialists are available to help me.

f. Other, please specify.

16. If you rated Non-Syracuse University Libraries important in searching for and/or locating material for your coursework, what are the factors that helped you the most? Circle more than one answer if necessary.

a. Geographical location.

b. The collections are easy to browse because of their smaller size.

c. Because of the way the material is organized, it is easy to locate.

d. Special collections needed for my research are available.

e. The library personnel are very helpful and give useful advice.

f. Specialized reference tools needed for searching for material are available.

g. Other, please specify.

17. If you rated departmental special collections as important in searching for and/or locating materials for your coursework, what are the factors that helped you the most? Circle more than one answer if necessary.

a. Accessible only to faculty and graduate students in my department.

b. Specific to my research needs.

c. Collection not available anywhere else.

d. Collection includes pre-publications.

e. Geographical location.

f. Environment where collection is housed is conducive to discussion with colleagues.

g. Other, please specify.

18. If you rated bookstores important in searching for and/or locating materials for your doctoral coursework, what are the factors that helped you the most? Circle more than one answer if necessary.

a. Time is not wasted looking for or locating material.

b. The collections are up-to-date.

c. The wait until the material is returned from library circulation is eliminated.

d. Any item can be ordered and obtained in a fairly short period of time.

e. Geographical location.

f. Owning the material is preferable to borrowing it from the library.

g. Other, please specify.

19. If you rated personal channels important in locating materials for your doctoral coursework, what are the factors that helped you the most? Circle more than one answer if necessary.

a. The material can be kept for as long as needed.

b. Material borrowed or references recommended has been evaluated as to their pertinence to my research.

c. There is an opportunity to discuss the contents of the material.

d. Time spent searching for references or citations is eliminated.

e. Other, please list.

APPENDIX B

QUESTIONS 20 THROUGH 25 ARE CONCERNED WITH SYRACUSE UNIVERSITY LIBRARIES:

Please answer question 20 and 21 using the scale below:

1 Frequently
2 Occasionally
3 Not at all
4 Not aware

20. How much do you use the following tools:

Card Catalog	1	2	3	4
SULIRS (on-line catalog)	1	2	3	4
Indexes and abstracts	1	2	3	4
Reference Bibliographies	1	2	3	4
Directories	1	2	3	4
Consult subject specialists	1	2	3	4
Other, please list				
	1	2	3	4
	1	2	3	4

21. How often do you use the following services?

Interlibrary Loan	1	2	3	4
Reference	1	2	3	4
On-line database searching	1	2	3	4
Reserve Collection	1	2	3	4
Microforms	1	2	3	4
Audio Visual (Slides, tapes, etc.)	1	2	3	4
Government Publications	1	2	3	4
Photocopying	1	2	3	4
Archives	1	2	3	4
Newspapers	1	2	3	4
Other, please list				
	1	2	3	4
	1	2	3	4

22. Have you ever requested that Syracuse University Libraries buy materials for your area of interest?

( ) YES

( ) NO

23. If yes, was your request fulfilled?

( ) YES

( ) NO

24. Have you ever as an undergraduate or graduate student had instruction or orientation in the use of the library?

( ) YES

( ) NO

25. If YES, which of the following were helpful in reducing time spent looking for material. Circle more than one answer if necessary.

a. Orientation tour

b. Guidebooks or handouts

c. Presentation by a librarian in one of your courses

d. Assignment in use of the library as part of a course

e. A formal credit course in library instruction

f. A non-credit course in library instruction

g. One-to-one tutoring with subject specialist/librarian

h. Other, please list

APPENDIX B

QUESTIONS 26 THROUGH 33 ARE CONCERNED WITH ECONOMIC AND TIME ALLOCATION FACTORS:

26. Do you belong to a professional association in your field that provides professional journals and/or newsletters?

( ) YES

( ) NO

27. How often during your doctoral study did you prefer to purchase material or subscribe to journals knowing that these items were also available in any library or personal collection? Circle the one best answer.

1 Frequently

2 Moderately

3 Rarely

4 Not at all

28. Approximately how much have you spent during the past year for the purchase of books and/or subscriptions to journals? Circle the one best answer.

a. Over $200.00

b. Between $150.00 and $200.00

c. Between $100.00 and $150.00

d. Between $50.00 and $100.00

e. Under $50.00

29. How is your doctoral study funded? Please circle more than one answer, if necessary.

    a. From a research grant

    b. Fellowship

    c. Family income/savings

    d. Loans

    e. Employment income

    f. Other, please specify

30. Are you employed?

    ( ) YES

    ( ) NO

31. Do you work in the University as one of the following? Circle the one best answer.

    a. Research Assistant/Associate

    b. Graduate Assistant/Associate

    c. Teaching Assistant/Associate

    d. Other, please describe.

32. If any of the above were circled, how many hours per week? _____hrs.

33. If you are employed outside the University, how many hours per week do you work? _____hrs.

APPENDIX B

QUESTIONS 34 THROUGH 38 ARE CONCERNED WITH DEMOGRAPHIC DATA:

34. Sex

( ) Female

( ) Male

35. Age on last birthday _____

36. Are you a U.S. Citizen?

( ) YES

( ) NO

37. If not a U.S. Citizen, of what country are you a citizen?

38. We would appreciate any comments or suggestions you might have concerning this questionnaire.

-Thank you-

APPENDIX C

QUESTIONS 1 THROUGH 8 ARE CONCERNED WITH YOUR DISSERTATION RESEARCH!

1. In what year and discipline did you obtain your bachelor/master(s) degree?

Degree	Year	Discipline*
Bachelor		
Master('s)		

*e.g., Physics, Engineering, English, History, etc.

2. Give a brief description of the problem you are tackling with your dissertation/proposal.

3. Did your advisor or any faculty member on your committee suggest the research topic of your dissertation proposal?

( ) YES

( ) NO

4. If NO, explain why you are interested in this topic.

5. Is the research interest of your advisor or any faculty member on your committee in the same area as that of your dissertation or proposal?

( ) YES

( ) NO

6. Have you undertaken <u>any</u> joint research with your advisor or any faculty member on your committee?

( ) YES

( ) NO

7. If YES, describe briefly.

8. Is your dissertation research part of a research grant?

( ) YES

( ) NO

APPENDIX C

QUESTIONS 9 THROUGH 11 ARE CONCERNED WITH THE PREVIOUS KNOWLEDGE AND SEARCH STRATEGIES OF THE LITERATURE OF THE FIELD:

9. How would you describe your knowledge of the literature on the topic of your dissertation when you started your research? Please circle only the one best answer.

   a. I had no previous knowledge.

   b. I had little knowledge of the literature.

   c. I was somewhat knowledgeable about the literature.

   d. I was quite knowledgeable about the literature.

10. If you have circled c or d above, please describe briefly the sources of this previous knowledge (e.g., previous projects or papers for courses or seminars).

11. When searching (looking for references and selecting material needed for your research), which of the following search strategies is most appropriate to your research? Please circle the one best answer.

   a. Optimum search - all material relevant to a certain topic. This material may be scattered across several disciplines and may require much effort to discover.

   b. Bounded search - a representative set of references on the topic. These references are well-known and well-defined (e.g., core journals) and were identified from previous coursework or masters thesis.

   c. Satisficing search - a few relevant references for a background overview and/or material with particular facts and data.

   d. No search is necessary.

APPENDIX C

QUESTION 12 THROUGH 18 ARE CONCERNED WITH INFORMATION CHANNELS:

Please answer questions 12 and 13 using the scale below.

1	Very important
2	Fairly important
3	Fairly unimportant
4	Not important
5	Not applicable

12. What is the importance of each of the following information channels when searching (looking for references and selecting material needed for your research)? Please choose one answer for each item.

a.	Syracuse University Libraries	1	2	3	4	5
b.	Non Syracuse University Libraries (i.e. Moon, Cornell, public libraries, historical societies)	1	2	3	4	5
c.	Departmental Special Collections (i.e. pre-print collection in the Physics Department)	1	2	3	4	5
d.	Bookstores	1	2	3	4	5
e.	Personal Channels (references suggested by faculty, friends, fellow students, etc.)	1	2	3	4	5
f.	Other, please specify	1	2	3	4	5

APPENDIX C

13. What is the importance of each of the following information channels when <u>locating</u> (obtaining the material in hand from the bookshelf or from the circulation desk) material needed for your research?

a.	Syracuse University Libraries	1	2	3	4	5
b.	Non-Syracuse Univ. Libraries	1	2	3	4	5
c.	Departmental Special Collections	1	2	3	4	5
d.	Bookstores	1	2	3	4	5
e.	Personal Channels	1	2	3	4	5
f.	Other, please specify	1	2	3	4	5

14. If you rated Syracuse University Libraries important in searching for and/or locating research materials, what are the factors that helped you the most? Circle <u>more</u> than one answer if necessary.

a. The collection is strong in my research area.

b. Specialized reference tools (e.g. indexes, abstracts, etc.) are available.

c. Material can be located.

d. A study carrel in Bird Library is available.

e. Subject specialists are available to help me.

f. Other, please specify.

15. If you rated Non-Syracuse University Libraries important in searching for and/or locating research material, what are the factors that helped you the most? Circle more than one answer if necessary.

a. Geographical location.

b. The collections are easy to browse because of their smaller size.

c. Because of the way the material is organized, it is easy to locate.

d. Special collections needed for my research are available.

e. The library personnel are very helpful and give useful advice.

f. Specialized reference tools needed for searching for material are available.

g. Other, please specify.

16. If you rated departmental special collections as important in searching for and/or locating research materials, what are the factors that helped you the most? Circle more than one answer if necessary.

a. Accessible only to faculty and graduate students in my department.

b. Specific to my research needs.

c. Collection not available anywhere else.

d. Collection includes pre-publications.

e. Geographical location.

f. Environment where collection is housed is conducive to discussion with colleagues.

g. Other, please specify.

17. If you rated bookstores important in searching for and/or locating research materials what are the factors that helped you the most? Circle more than one answer if necessary.

a. Time is not wasted looking for or locating material.

b. The collections are up-to-date.

c. The wait until the material is returned from library circulation is eliminated.

d. Any item can be ordered and obtained in a fairly short period of time.

e. Geographical location.

f. Owning the material is preferable to borrowing it from the library.

g. Other, please specify.

18. If you rated personal channels important in locating research materials, what are the factors that helped you the most? Circle more than one answer if necessary.

a. The material can be kept for as long as needed.

b. Material borrowed or references recommended has been evaluated as to their pertinence to my research.

c. There is an opportunity to discuss the contents of the material.

d. Time spent searching for references or citations is eliminated.

e. Other, please list.

APPENDIX C

QUESTIONS 19 THROUGH 24 ARE CONCERNED WITH SYRACUSE UNIVERSITY LIBRARIES:

Please answer question 19 and 20 using the scale below:

1 Frequently
2 Occasionally
3 Not at all
4 Not aware

19. How much do you use the following tools:

Card Catalog	1	2	3	4
SULIRS (on-line catalog)	1	2	3	4
Indexes and abstracts	1	2	3	4
Reference Bibliographies	1	2	3	4
Directories	1	2	3	4
Consult subject specialists	1	2	3	4
Other, please list				
	1	2	3	4
	1	2	3	4

20. How often do you use the following services?

Interlibrary Loan	1	2	3	4
Reference	1	2	3	4
On-line database searching	1	2	3	4
Reserve	1	2	3	4
Microforms	1	2	3	4
Audio Visual (Slides, tapes, etc.)	1	2	3	4
Government Publications	1	2	3	4
Photocopying	1	2	3	4
Archives	1	2	3	4
Newspapers	1	2	3	4
Other, please list				
	1	2	3	4
	1	2	3	4

21. Have you ever requested that Syracuse University Libraries buy materials for your research?

( ) YES

( ) NO

22. If yes, was your request fulfilled?

( ) YES

( ) NO

23. Have you ever as an undergraduate or graduate student had instruction or orientation in the use of the library?

( ) YES

( ) NO

24. If YES, which of the following were helpful in reducing time spent looking for material. Circle more than one answer if necessary.

a. Orientation tour

b. Guidebooks or handouts

c. Presentation by a librarian in one of your courses

d. Assignment in use of the library as part of a course

e. A formal credit course in library instruction

f. A non-credit course in library instruction

g. One-to-one tutoring with subject specialist/librarian

h. Other, please list

APPENDIX C

QUESTIONS 25 THROUGH 32 ARE CONCERNED WITH ECONOMIC AND TIME ALLOCATION FACTORS:

25. Do you belong to a professional association in your field that provides professional journals and/or newsletters?

( ) YES

( ) NO

26. How often during your doctoral study did you prefer to purchase material or subscribe to journals knowing that these items were also available in any library or personal collection? Circle the one best answer.

1 Frequently

2 Moderately

3 Rarely

4 Not at all

27. Approximately how much have you spent during the past year for the purchase of books and/or subscriptions to journals? Circle the one best answer.

a. Over $200.00

b. Between $150.00 and $200.00

c. Between $100.00 and $150.00

d. Between $50.00 and $100.00

e. Under $50.00

28. How is your dissertation funded? Please circle more than one answer, if necessary.

    a. From a research grant

    b. Fellowship

    c. Family income/savings

    d. Loans

    e. Employment income

    f. Other, please specify

29. Are you employed?

    ( ) YES

    ( ) NO

30. Do you work in the University as one of the following? Circle the one best answer.

    a. Research Assistant/Associate

    b. Graduate Assistant/Associate

    c. Teaching Assistant/Associate

    d. Other, please describe.

31. If any of the above were circled, how many hours per week? _____hrs.

32. If you are employed outside the University, how many hours per week do you work? _____hrs.

APPENDIX C

QUESTIONS 33 THROUGH 36 ARE CONCERNED WITH DEMOGRAPHIC DATA:

33. Sex

( ) Female

( ) Male

34. Age on last birthday _____

35. Are you a U.S. Citizen?

( ) YES

( ) NO

36. If not a U.S. Citizen, of what country are you a citizen?

37. We would appreciate any comments or suggestions you might have concerning this questionnaire.

-Thank you-

APPENDIX D

Dear Student:

We have received a research grant from the Council on Library Resources to investigate the information seeking behavior of PhD students from selected disciplines. We have included your department in our survey. However, because there are a limited number of PhD students, we would appreciate your cooperation in completing this questionnaire.

A better understanding of your information needs will be useful in allocating Syracuse University Libraries' resources and in providing better services. This questionnaire should not take more than half an hour to complete. The research procedures were reviewed and approved by the Office of Sponsored Programs. All responses will be held in confidence and a special code will be assigned to your response to assure anonymity. Only the researcher will have access to this code. Thank you for your cooperation in this research.

If you have any questions concerning this request, please feel free to address your inquiries to:

Hona Farid
Assistant Professor
Information Studies
200 Huntington Hall
x-4124

or

Eileen Snyder
Librarian
Physics/Geology Library
x-2692/3337

Sincerely yours,